Ghana

Pharmaceutical Pricing in the Public Sector

Theory and Practice—Myth and Reality

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DELIVER

DELIVER, a five-year worldwide technical assistance support contract, is funded by the Commodities Security and Logistics Division (CSL) of the Office of Population and Reproductive Health of the Bureau for Global Health (GH) Field Support and Research of the U.S. Agency for International Development (USAID).

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Recommended Citation

Huff-Rousselle, Maggie, and Joycelyn N. K. Azeez. 2002. *Ghana: Pharmaceutical Pricing in the Public Sector: Theory and Practice—Myth and Reality*. Arlington, Va.: DELIVER/John Snow, Inc., for the U.S. Agency for International Development (USAID).

Abstract

This report, based on current data and recent studies, raises complex, interrelated issues that support the policy debate on pharmaceutical pricing within the Ministry of Health (MOH) in Ghana. Using its cash-and-carry system, the MOH created a series of revolving drug funds (RDF), from the Central Medical Stores (CMS) level, through the Regional Medical Stores, to the final service delivery points (SDP). Each facility is expected to purchase new stock with funds from the sale of existing stock. Official pricing policies favor the upper levels: generous margins at the CMS with mark-ups that cover full-replacement costs, despite inefficiences in the system. Private sector pricing is the opposite—large wholesalers have high sales volumes and therefore low mark-ups, and retailers have low sales volumes with higher mark-ups.

These policies have had two negative consequences: (1) A more client-oriented, efficient ordering process in the private sector, combined with the private sector wholesalers ability to deliver and offer lower prices than CMS, has encouraged larger MOH facilities to purchase directly from the private sector instead of CMS. (2) The SDP mark-up does not cover full replacement costs, and the RDFs at the SDP level are decaptializing. They buy exclusively from the MOH system because they can buy on credit there.

The MOH is concerned about how the consumers will pay for pharmaceuticals through its system. The MOH purchases in bulk and understands comparative prices; but retail consumers purchase products episodically, do not understand prices, and may equate price and quality. Patients care about the total cost; they do not typically compare the cost of a single product. Therefore, the goal should be to reduce over-prescribing (4.6 items per encounter in 1993) instead of trying to keep the SDP level mark-ups low.

DELIVER

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Acronyms

AIDS	acquired immune deficiency syndrome
C&C	cash-and-carry
CHAG	Christian Health Association of Ghana
CMS	Central Medical Stores
DANIDA	Danish International Development Agency
DMS	District Medical Stores
EDL	Essential Drugs List
FP	family planning
GHS	Ghana Health Service
GMOH	Ghana Ministry of Health
GNDP	Ghana National Drugs Programme
GSS	Ghana Statistical Service
HP	health post
ICB	International Competitive Bidding
IRS	Internal Revenue Service
JSI	John Snow, Inc.
KB/CMS	Korle-Bu Central Medical Stores
MHO	Mutual Health Organizations
MOF	Ministry of Finance
MOH	Ministry of Health
NGO	nongovernmental organization
NHI	National Health Insurance
ORS	oral rehydration salts
PHRplus	Partners in Health Reform Plus Project
RDF	revolving drug fund
RDHS	Regional Director of Health Services
RDU	Rational Drug Use
RH	regional hospitals
RHA	Regional Health Administration
RMS	Regional Medical Stores
SDP	service delivery point
SPA	Service Providers Assessment
SSDM	Stores, Supplies and Drug Management
STG	standard treatment guidelines
USAID	U.S. Agency for International Development
UWR	Upper West Region
UWRDP	Upper West Regional Drug Programme

Introduction

This paper, *Ghana: Pharmaceutical Pricing in Ghana's Public Sector,* replaces an earlier draft discussion paper, *Research Related to Pharmaceutical Pricing in Ghana's Public Sector*, which was circulated to and discussed with key stakeholders within the Ghana Ministry of Health between 3 April and 12 April 2002. The earlier paper discussed the design of a study on pharmaceutical pricing in the public sector, including the clarification of key research questions. This paper does more than that—it directly supports policy dialogue on pricing for pharmaceuticals in the public sector. The paper incorporates the feedback received from stakeholders and the preliminary research conducted in early April 2002 to explain and illustrate issues raised in the first draft paper.[1]

Results from earlier work are synthesized here, including the ideas and opinions of Ministry of Health (MOH) stakeholders, about the issues covered by that work. Reflections on some of the previous work are included, if they are appropriate; if the work could have been interpreted differently; if the data are too weak to draw conclusions; and if previous work appears to be very solid but has not been incorporated into currently formulated policies. This discussion paper revisits issues that the MOH has examined in the past, questions or reinforces the views that have already been developed, and raises some issues that do not appear to have been raised in the past.

Midway through the paper, the point of view shifts from a cost-recovery/mark-up perspective to a market/incentives perspective. Toward the end of the paper, there are two separate sections. The first section focuses on the potential impact of the current cost-recovery/mark-up approach to pricing on the purchasing behavior of institutional buyers and the viability of the revolving drug funds (RDF) at various institutional levels, i.e., central medical stores (CMS), regional medical stores (RMS), district medical stores (DMS), and service delivery points (SDP) within the MOH system. The second section focuses on the impact of the current cost recovery/mark-up approach—including exemptions and prescribing habits—on the purchasing behavior of retail consumers or clients. As mentioned in these sections, attitudes and behavior at the two different levels vary significantly.

The discussion of pharmaceutical pricing takes place within the broader context of major changes, including the still-evolving clarification of roles between the MOH and the newly established Ghana Health Service (GHS) and an active on-going debate on National Health Insurance (NHI). For 30 years, NHI has been discussed in Ghana; the current government has made it a priority. During the Ghana Medical Association annual meeting (held in early April 2002, when the earlier draft paper was being circulated and discussed), the cash-and-carry (C&C) system was discussed on the first evening, and NHI—as a possible solution to the problems of C&C—was discussed the second evening. The "ugly face of cash-and-carry" was portrayed in an on-stage drama where a young boy died in the hospital waiting room because his parents had no money to pay for services.

Although NHI is presented as a solution to C&C, those working on plans for health insurance know that insurance cannot eliminate fees. If there were no fees, Ghanaians would have no motivation to voluntarily join a Mutual Health Organization (MHO) or to support a payroll withholding in the formal sector that would fund NHI through social insurance. These two

[1] A more detailed draft study methodology is also being developed as a separate document, and this will be refined as the MOH makes decisions on its priorities for research related to pharmaceutical pricing. Draft terms of reference for the study have also been developed.

insurance options, with limited private insurance, are currently viewed as the mix of insurance mechanisms that will gradually enable the government to introduce NHI. Under such schemes, even the insured would normally make co-payments (Armah 2002). Pharmaceuticals are always a primary target for both fees and co-payments. MOH stakeholders know this. Many suggested that a revamping of the existing user fee system was required. No one disputed the necessity of having fees, although many improvements to the current system are considered necessary. It is hoped that a combination of insurance mechanisms may eventually create an NHI in Ghana that will gradually eliminate (or greatly diminish) the need for most Ghanaians to pay user fees when they are sick and need services (Ghana Medical Association 2002).[2]

As is often the case with a policy formulation process, discussion of public sector pharmaceutical pricing in Ghana is much like the Indian parable of the six blind men and the elephant. The blind men wanted to "see" the elephant, so they approached him one-by-one. The first man, as he fell against the elephant's broad side declared, "the elephant is like a wall." The second blind man felt the elephant's tusk, and said, "This wonder of an elephant is very like a spear." Each of the other four blind men, in turn, interpreted his experience differently. The fable illustrates how each of us—even though we have "vision"—has a different "viewpoint" because of the different perspectives and positions from which we view an issue. Different stakeholders focus on different issues related to the C&C system, and they evaluate those issues from different perspectives. Some perceive fees as supporting adequate pharmaceutical supply. Some perceive them as deterring irrational use and encouraging efficiency. Some see them as a barrier to access. As a number of stakeholders pointed out, the MOH must be clear about its own objectives for pharmaceutical user fees. The varied perspectives must be brought together into one common perspective.

The multiple issues surrounding pricing are summarized and discussed in this paper using examples from our initial research or past studies to illustrate various points, and quotes from stakeholders to illustrate their varied perspectives. As we promised the interviewees, we have not attributed quotations to specific individuals.

[2] In addition to discussions with stakeholders, the discussion of NHI includes the presentation and discussion that took place during the Ghana Medical Association's 3rd Annual Public Lecture held in the National Theatre on April 10 and 11, 2002. His Excellency Alhaji Aliu Maham, Vice President of Ghana, attended the event. The event was well covered by seven radio and TV stations, with ample media debate before, during, and after the public lecture.

Selected Quotations from Key Stakeholders

The following quotations represent a potpourri of comments and questions from key stakeholders:

"Price will depend on your procurement habits."

"So that is what I think is most important: what is the purchase price? And why? The ICB is good, but what is happening with other procurements?"

"Who is bearing the cost? This is my concern. Is CMS providing transport? No. But it charges for it. Do we pass on costs to the patients unnecessarily?"

"It's like they [MOH institutonal buyers] take CMS for another supplier. They take CMS prices and compare them with other suppliers."

"[Local] suppliers know what CMS is doing and can go around and offer a lower price to MOH facilities."

"CMS should have a dynamic role."

"Everything goes back to CMS. We need to get rid of the crocodiles at CMS."

"What is the relationship between RMS and CMS? If you want to control price, those two should be fused. No mark-up at the RMS level!"

"What are the real costs at CMS? At RMS?"

"My view is that CMS and RMS could just be distribution centers, without mark-ups."

"Every region should establish standard prices. There should be regional pricing."

"That's the policy question/issue: are the distribution centers to make money?"

"At each level you have a buyer-seller relationship, and the effect of that relationship on price mark-up."

"[We] want to look at how the system works—incentives, etc."

"The biggest problem is not examined enough. The actual prices patients pay are way beyond official prices. If [a product] starts at 1,200, it ends up [rounded up] at the next 1,000."

"So far, many people are seeing cash-and-carry from a negative perspective. But, cash-and-carry came in for a reason. People 'own' drugs—compliance is better."

"When you look at the [internally generated funds] they are contributing more to quality of care than the government or donors. Revenue collection is a big incentive for management."

"We need capacity building. Many of the managers—even the RMS managers—don't understand how [a revolving drug fund] works."

"One of the worst things government has done is to have chosen the name 'cash-and-carry.' It should have been 'Cost Recovery.' The name—cash-and-carry—has been a big part of the problem. [It gives] an unfeeling sense."

"Just this morning on the news, they were saying they intend to abolish cash-and-carry. Better to say they are studying a way to improve it."

"If there are no user fees, there is not motivation to buy into health insurance."

"The [MOH facilities] think [the exemption reimbursement mechanism] is a dead elephant and they can just cut as much as they want to."

"The payment of exemptions…the more they delay, the more problems they create."

"[It takes a] long time to classify someone as a pauper, and normally it happens after someone falls sick."

"The whole system is in flux. It's a difficult time to be working in such an institution. The whole transition started long ago. Deadlines have come and passed. We don't know when it will finish."

"Does the MOH have a policy? I wouldn't call it that… The policy is that there should be a mark-up."

"What scheme does the MOH have? Is there even one? What system has the MOH set off?"

"We should be using the mark-up to subsidize the vital drugs."

"Even at the top level, they don't understand the issues [C&C and insurance] very well."

"The whole thing is very politicized."

"Free things aren't free if they aren't there."

Background

Like many other countries in sub-Saharan Africa in the 1980s, Ghana adopted economic structural adjustment policies, including the introduction of selected cost recovery initiatives in the social sectors. In the health sector, Hospital Fees Legislation was introduced in 1985, and the cash-and-carry (C&C) system for pharmaceutical supply to outpatients throughout the Ministry of Health (MOH) system was introduced in 1992 (Asenso-Okyere et al. 1998).

The C&C system was inspired, not only by structural adjustment programs, but by the "Bamako Initiative," spearheaded by UNICEF and implemented in many developing countries, especially Africa. The initiative was based on the theory that charging for drugs would help finance and, therefore, improve the delivery of primary health care services. The scarcity of pharmaceuticals in Ghana's public sector had led to the organic development of pharmaceutical fee schemes within many MOH facilities, and the notion of improving pharmaceutical supply throughout the system with financing from user fees was accepted with relative ease.

Nevertheless, the MOH was then—and continues to be—concerned about the impact of fees for pharmaceuticals on equity and access to health care for the poor. The concern is well-founded. Despite the wealth of household econometric studies that have indicated how much poor people in developing countries are spending on pharmaceuticals, the introduction of fees within the public sector has frequently led to decreases in access and equity in developing countries (Huff-Rousselle, Shepherd, and Trisolini 1993). However, in Ghana, while access and equity may have been compromised for some, the C&C system appears to have shifted the pharmaceutical supply system from one with chronic stockouts to a more dependable supply system, and patient attendance at MOH facilities has been gradually increasing (Asenso-Okyere et al. 1998).

This was the MOH's primary objective in charging for drugs—not revenue mobilization but improved health services, primarily through improved pharmaceutical supply. Most other sub-Saharan African countries had the same objective when they introduced similar fee policies (Shaw 1996).

Within the C&C system, each MOH facility was expected to have a self-financing revolving drug fund (RDF) by resupplying the products with the revenues obtained from the sale of pharmaceuticals. A series of RDFs—created at each institutional level within the MOH—cascades down the tiers of the MOH health delivery system, with a large RDF at the level of Central Medical Stores, 10 smaller RDFs in each of the Regional Medical Stores (RMS), District Medical Stores (DMS) in a few districts, and RDFs in every hospital and service delivery point (SDP) within the MOH system. At each level of the system, the facility usually marks up the basic purchase price paid for a product. As originally envisioned, these mark-ups were intended to cover the cost of repurchasing the products, including allowances for losses, inflation, duties (at the CMS level), and costs directly related to products, such as insurance and casual labor for handling. Fixed percentages for mark-ups at each level were established by the MOH. However, actual practice has often deviated from these official MOH mark-ups, and the official policies have changed over time, although the changes were not clearly documented or communicated.

The MOH wants to formulate improved pharmaceutical pricing polices. To do this, policymakers should understand—

- How actual pricing practices have evolved at different levels of the MOH system, both according to those who established the prices (qualitative data) and according to quantitative analysis of records.

- Why prices have evolved—the ideas and attitudes that underlie pricing practices at different levels in different facilities.

- The impact of marked-up prices (from higher-level facilities) on the buying behavior at the facility level, especially when the behavior tends to encourage buying from the private sector rather than the next level of the series of RDFs within the MOH system.

- The degree that mark-ups are providing sufficient funds to resupply the system at each level and in each facility, including devaluation/inflation and other directly related costs (but only calculating a "reasonable" margin for losses).

- The percentage of products (in monetary terms) purchased from the private sector at different levels of the MOH system, in different facilities.

- How MOH prices compare with local manufacturers and wholesalers.

- How MOH prices compare with Mission-run and private facilities at different levels of the system.

- The proportion of exemptions made at the SDP, and the degree to which those exemptions are reimbursed through MOH subsidies, *including the related costs that mark-ups are intended to cover.*

- The impact of exemptions/subsidies on the RDFs at the SDP level and the overall financial viability of the RDFs.

- The impact of exemptions and subsidies on access and equity.

- The MOH providers sensitivity about the number of items they prescribe to patients who must pay for pharmaceuticals.

- The relative importance of *individual product price* in a potential client's decision making about whether or not to use the MOH system, as opposed to the total cost of treatment.

Some of these issues are more important than others. Some have already been addressed, although they may need more work. Some are relatively easy to answer in both qualitative and quantitative terms. Some, however—both qualitative and quantitative—cannot be answered with more than well-informed opinions. Given the way the system has evolved and currently operates, perfect information will never be available. A pricing study will fill in some of the information gaps. There is already a great deal of information available that allows decision makers to consider the options for reforming pricing policies.

Cost-Recovery/Mark-Up Approach to Pricing

Pricing in the public sector conventionally focuses on a cost recovery perspective that considers the relevant costs and then establishes prices that match those costs. For revolving drug funds (RDFs), this could include inflation over the length of the supply pipeline, anticipated losses, other costs directly associated with full resupply, and even subsidies for exemptions (Cross et al. 1986). Although subsidies for exemptions have been considered a separate budgetary responsibility of the MOH, the cost-recovery approach to pricing has dominated the thinking about pricing within the MOH. It is a conventional public sector perspective. Later in this paper, we will consider other perspectives on pricing that can illuminate pharmaceutical pricing issues in Ghana's public sector.

By focusing on the identification and estimation of cost elements at different levels of the system, the MOH has developed a number of frameworks for pricing over time, testing different estimates of the cost elements to calculate appropriate mark-ups at each level. At this point, the actual basis for the current official mark-up policy is not clear, and many facilities are unaware of the policy. People "met the prices" when they came to a particular facility to work—meaning they found certain pricing practices in the facilities when they began working there but didn't know how or why these practices had been established. Table 1, constructed by an MOH working group, illustrates how mark-ups have been determined.

The figures from the working group's report are illustrative only; the basic framework of this table is similar to the other cost-recovery frameworks that have been developed over time. The logic is always similar. The lines in the original table were resequenced to facilitate observations on the logic and to make suggestions for refinements to the logic that follows.

Table 1. Summary of Costs to Be Covered through Charge or Subsidy

Cost Element	CMS Imports (%)	CMS Local Purchase (%)	RMS (%)	Facility (%)
Cost of stock	100.0	100.0	100.0	100.0
Import duty (average)	12.5			
Handling/clearance	0.5			
Demurrrage/documents	0.5			
Ordering cost (CSC)	4.0	2.0		
Casual labor	0.5	0.5	0.5	0.5
Insurance	1.0	0.5	0.5	
Transport (collection)			2.5	2.5
Inflation/devaluation	25.0	15.0	15.0	5.0
Losses	5.0	5.0	5.0	5.0
Total	**149.0**	**123.0**	**123.0**	**113.0**
Cumulative mark-up for imports			184.0	207.9
Cumulative mark-up for local purchase			151.9	171.7

Base Purchase Price

The basic purchase price in the table is always presented as 100 percent, which—given the final mark-ups—might suggest that the ultimate client will pay less for a locally procured product than for an imported product. The opposite should be the case; the cost of a product imported by the MOH should be lower than the cost of locally produced products—with some exceptions. The 1993 Pharmaceutical Sector Assessment indicated that the MOH paid only 79 percent of the average international prices for its most recent procurement of pharmaceuticals (Rankin et al. 1993), indicating that the international tendering process was effective in obtaining low purchase costs. By contrast, with the exception of bulky products (e.g., IVs) and simpler formulations, local production is generally inefficient and relatively expensive in all but the largest developing countries. Therefore, the basic purchase price for locally procured products should *typically* be well above average international prices. Given the impact of the original import-versus-local purchase price through each level of the system, the purchase price to the ultimate client should be higher for locally procured products.

This observation is particularly relevant because facilities have been buying more and more stock from the private sector. The 1993 Assessment indicated that 53.9 percent of all CMS products were purchased through international tenders, an average of 65 percent[3] of RMS products were through CMS, and 71 percent of SDP products were purchased through RMS or CMS. This means that only ($0.539 \times 0.65 \times 0.71$) 24.9 percent of products that reached the SDP level had come through the international tendering process; more than 75 percent of the products were coming from the local private sector. Although data were not collected in a way that allows replication of the above calculation, the 1999 Assessment indicates that the private sector's share of MOH facility purchasing continued to grow from 1995 though 1998 (Ministry of Health 1999).

Because of smaller volumes, and lack of access to competitive information, negotiating power, and time to do competitive shopping, MOH facilities should be paying high purchase prices when they purchase from the private sector (although there will be exceptions). Purchasing in the private sector can also create the temptation for under-the-table arrangements that push the purchase price—on which all other calculations for mark-up are based—up even higher.

However, the mark-ups being added to the MOH prices throughout the system are creating distortions that mean public sector prices are sometimes higher—rather than lower—than private sector prices, especially from the CMS and RMS levels. This issue will be discussed later in this paper when we consider the ultimate mark-up and pricing policies as they impact purchasing behavior and incentives—rather limiting the perspective to cost-recovery. The MOH should be informed about the unit purchase prices that are being paid for different products, from different sources, at different levels. This is critical because every other element of current mark-up policies is based on purchase price, and over-priced public sector products will block the flow of products through the system. Previous deliberations and studies have overlooked this critical element of current pricing policies.

Duties, Clearance, and Other CMS Costs

Some costs related to the replacement costs of products are unique to international procurement through CMS, including duties, customs clearance, demurrage, etc. In table 1 they are estimated at 13.5 percent. Ordering costs are also listed as unique to CMS, and were estimated at 4.0 and

[3] The original figure was miscalculated as 28% because an RMS without any available data was included.

2.0 percent respectively for international and local procurement, although all procurement is done by the MOH Procurement Unit, not CMS. Therefore, the hypothetical mark-ups unique to CMS are 17.5 and 15.5 percent, depending on the source of the products. It appears that no analysis of the CMS costs have been done, and some of the costs do not always apply to public sector organizations like the MOH. Others should be incurred at the MOH Procurement Unit and not CMS. Those currently managing the CMS "met the prices" when they came to work there and did not know the basis for current mark-ups.

Casual Labor and Insurance Costs

These costs occur at all levels, except insurance, which is not applied to the SDP level. Except for the research we conducted in the Greater Accra RMS, no analysis of these costs has been done. No such costs applied in the Greater Accra RMS for any transaction made in 2001.

Transportation Costs

In table 1, transportation costs are only assigned to the RMS and SDP level. Given the current problems surrounding transport in the MOH supply system, the recent experience with transportation costs should be carefully analyzed in sample facilities. For the Greater Accra RMS, we found that total transportation represented less than 1 percent of total RDF expenses for 2001. Clearly, this RMS is close to both CMS and private sector sources. One stakeholder suggested that an analysis of the effect of distance on transport costs should be done.

Inflation/Devaluation

The impact of inflation/devaluation on replacement costs is influenced by a combination of devaluation/inflation and the number of months in the pipeline at each level of the supply system. For example, if inflation is 1 percent a month and the pipeline is 18 months long, the inflation rate of 1 percent must be compounded (because each month's inflation builds on the last month) over the 18-month period to calculate its impact on replacement cost. Inflation cannot be controlled within the MOH system but the length of the pipeline can be—every extra month of pipeline at any level adds an additional month of inflation to replacement costs.

The economic instability caused by inflation and devaluation has been particularly difficult for those working with the RDFs. An improved understanding of the impact of pipeline length on inflation would be helpful to planners and managers, and recent improvements in the stability of the cedi will make future planning easier.

Losses

Losses include spoiled goods, expiration, and leakage through theft, etc. The actual extent of losses in the MOH system is unknown, despite multiple past analyses of inventory records. The lack of information related to losses is typical in other country settings. Often losses are never recorded (Raja, Allain, and Kinzett 1999). Recordkeeping for stock is always less than perfect: the 1993 assessment showed a 14.6 deviation between ledger records and physical inventory in Ghana (Rankin et al. 1993). Spoiled and expired drugs are not recognized in the records until they have been removed from the warehouse (which is typically long after they spoiled or expired).

When recognized, these losses cannot be identified with a particular time period (so they could be included as a typical cost related to repurchase), as years have generally passed between their original order/receipt and when the loss was recognized. Finally, leakage through theft and other avenues is very difficult to assess accurately, particularly in association with a particular time period. Like spoilage and expired goods, these losses are not recognized until inventory records are adjusted to correct for discrepancies between physical counts and the records, and it is often unclear whether the adjustment is to correct recordkeeping or recognize leakage.

Apparently, CMS checks stock quarterly and recognizes and writes off losses annually. The CMS managers estimate that stock losses are between 2 and 5 percent annually, with another 2 percent for theft. Therefore, combined losses at CMS run between 4 and 7 percent according to the managers.

Although it is impossible to obtain accurate data on losses for all MOH facilities, such data are not necessarily relevant for pricing purposes. The MOH should establish a percentage that is a reasonable level for losses, and use this figure as a mechanism—among many others—to control the level of losses in the system. The Ghanaian consumer should not have to pay for unreasonably high levels of expiration, spoilage, and theft within the public sector. "As for losses," said one stakeholder, "they should be good [minimal] if the system is well managed."

Losses cannot be treated in the same way as other costs because they do not add a cost to the base purchase price. Losses reduce the base of products available for sale, which makes their impact larger than the proportion of losses. When losses occur, the remaining products available for sale should be marked up sufficiently to cover the replacement costs of the original product, including all replacement costs associated with the lost products (see table 2).

Table 2: Impact of Losses on Mark-Up for Cost-Recovery Pricing

Losses	Purchase Price for 100 Units	Associated Replacement Cost	Total Replacement Costs	Units Available for Sale	Unit Price	Required Mark-up %
Without Losses	100,000	25%	125,000	100	1,250.00	25
With 5% Losses	100,000	25%	125,000	95	1,315.79	32
With 10% Losses	100,000	25%	125,000	90	1,388.89	39
With 15% Losses	100,000	25%	125,000	85	1,470.00	47
With 20% Losses	100,000	25%	125,000	80	1,562.50	56
With 25% Losses	100,000	25%	125,000	75	1,666.67	67

The following sections of this paper focus on the impact of higher or lower prices in the public versus the private sector on institutional buyers, i.e., MOH and private sector health facilities. However, within this discussion of losses, one must also consider that lower MOH prices can both undermine efforts to channel scarce public resources to the poor and possibly encourage leakage to the private sector. There is some evidence of this from previous work on contraceptives (Chandani et al. 2000).

Missing Elements

In addition to losses, inflation/devaluation, and the other costs described earlier, other elements impact the replacement cost of products for a program.

First, exemptions, like losses, reduce the number of products available for sale, and they are supposed to be subsidized by the MOH in Ghana. Given their unique nature, exemptions—and their impact on the RDFs—are discussed in the final section of this paper when we consider the end consumers.

A second element missing from the cost recovery perspective described earlier is program growth. Although many people believe that programs that do not have profit as a primary objective should not have any surplus, most of these programs need to make a surplus—i.e., charge more than actual costs—in order to build up working capital that will fund things like future inflation and program growth.

Third, up to now it has always been assumed that every product should be marked up by the same fixed percentage. Although these fixed margins have not been adhered to, exceptions have typically been made as downward adjustments because of the relative price of a product.

Finally, economies of scale and the effect of movement down through the pipeline were not considered in the approach to cost recovery described earlier. Normally, the wholesale margin, where high volumes are typical, should be much lower than the retail margin where volumes are relatively modest. In fact, the reverse has been true in most of the MOH system, where the CMS and RMS levels were officially given higher mark ups than the SDPs.

Useful Exceptions to This Cost Recovery Approach

Although the private sector would take the factors described earlier into consideration, it would never limit thinking about pricing strategies to those factors. During our preliminary research, we encountered two exceptions within the MOH system. They are described below:

Upper West Region

The MOH program in the Upper West Region, which was supported by DANIDA, deliberately set prices in ways that deviated from the standard approach to the C&C system. In addition to considering elements of replacement costs, such as losses and inflation, the pricing strategies considered the extra requirements for the next cycle based on program growth. In other words, they considered, not only setting prices to replace current stock but setting prices to buy additional stock each purchasing cycle, as demand for products grew over time. In the Upper West, rather than having a standard mark-up on all productes, part of the cost of expensive and vital drugs was loaded onto bulky, cheap items. This pricing strategy should provide a cross-subsidy for more essential public health products. Prices were also fixed for all facilities in the region, so decision making about pricing at the SDP level was controlled at the RMS level where staff presumably had more access to pricing information and more sophisticated skills.

However, as with other parts of the MOH system, the UWR set a lower overall mark-up at the SDP level than the mark-up applied at the RMS level. All facilities were fully stocked with drugs at the beginning of the program as a form of capitalization rather than making the initial shipment a loan (which often started the SDPs off in a debt situation). Any shortfalls due to exemptions or

starting problems were compensated by DANIDA, and this probably masked the erosion of capital that would have been occurring because of the relatively low (5 percent) mark-up at the SDP level, along with providing a safety net from other risks to the RDFs. Certainly, this is suggested by the levels of rising debt and recapitalization shown in the DANIDA/MOH reports (Ministry of Health/Upper West Region 1998, 1999).

Partly because of the support it has received from DANIDA, the UWR has been viewed as a model for pharmaceutical supply. As a follow-up to the process mapping study and in support of the reengineering effort that is underway, a DELIVER team was working in the UWR during April 2002. A pricing study should also use UWR as one of its research sites.

The Shop at Korle-Bu Hospital

The other exception we encountered was The Shop at Korle-Bu Hospital, the major teaching hospital in Accra. The Shop was set up as a semi-autonomous pharmacy in the middle of the hospital complex, partly because it was clear that the many commercial pharmacies established just outside the hospital compound were thriving on their hospital-related business. The Shop operates 24 hours a day, seven days a week and serves from 1,500 to 1,700 patients a day, including both patients who come from the hospital and patients from outside.

The Shop is completely independent from the Korle-Bu Pharmacy Department, and they treat the department as one of its suppliers, mainly for products produced in the pharmacy department's production unit. Although The Shop buys some of its products from CMS, most products come from the private sector. It has two procurement systems: (1) a bulk purchases tendering system for items whose demand can be predicted for three to six months into the future, and (2) an "on demand" system.

"We are not limited by finances," the manager said. "We have money. But we don't buy large quantities for products when we're not sure of consumption. We enjoy economies of scale. We do use CMS, but they disappoint us… What we get from [local firm] is cheaper than Tema [CMS]… They don't even have 20 percent of the products we carry. We buy even less than 20 percent, maybe five percent this year… We go to CMS and have to queue…only go to CMS for anti snake-bite, anti rabies, etc." The CMS mark-up on IV solutions was mentioned.[4]

The manager thought The Shop bought about 30 percent of its stock outside the Essential Drugs List (EDL). She said it would appear that it was much more than that if one looked at the shelves; this was because they were buying so many branded products.[5] "We have to cater to prescribing habits and patient demand," she said.

The manager mentioned an "MOH approved pricing of 15 percent" but said The Shop had a system that worked well for them. Typical price mark-ups ranged from 7.5 to 20 percent, with some items priced at 25 percent mark-up and some at 0 percent. The Shop ranks items in tiers for pricing. If a product is inexpensive and has a high turnover, a higher mark-up is generally applied. For example, paracetamol in blister packs was marked up 15 percent; cough syrup was marked up 20 percent; and multivitamins and vitamin C were marked up 25 percent. On the other

[4] Because IVs are locally manufactured and the manufacturer has a quasi-monopoly on the IV market, it makes no sense for CMS to be buying from them and then marking up. The MOH could make the firm compete on the ICB, and, if the price is close enough to the ICB, give them year-long contracts for the public sector, without quantity guarantees.

[5] This is a matter of interpretation. Some would consider "branded" products as being outside the EDL even when they are generic equivalents.

hand, expensive cancer treatments—e.g., Zoladez injection (goserelin 3.6 mg) for prostate cancer and cytarabine or Erwinase injections for childhood leukemia—were not marked up. The Shop does not monitor the surrounding commercial pharmacies routinely, and the manager seemed confident that The Shop prices were lower than the commercial pharmacies. The manager said that The Shop "enjoys economies of scale" that the commercial pharmacies do not, and that the "pricing has really worked." Although The Shop is apparently controversial with some MOH observers, it is interesting to note that the philosophy behind the pricing strategy does not differ from that described for the DANIDA-supported initiative in Upper West Region.

The Shop provides no exemptions and offers no credit. It earned about two billion cedis in profits during the past year. Of the profits, about 1.6 billion (or 60 percent) went to the hospital; 200 million was used to run the pharmacy department; 300 million was used for hospital staff drug needs; and 300 million was retained or spent on The Shop. The financial records are computerized and could be examined as a part of the pricing study. Ironically, The Shop was initially capitalized with "seed stock" from CMS.

Market/Incentive Approach to Pricing

We now shift the perspective from a cost recovery to a marketing/incentive approach to pricing, a perspective that the two previous examples may suggest. In terms of attitudes and behavior about buying pharmaceuticals, there is a significant difference between bulk consumers facilities (both MOH and mission-run), the providers who prescribe the products, and the retail consumers (patients) who use them.

MOH facilities buy in bulk. Given the large volumes they buy, they are bound to be more informed about prices, and they should have knowledge that enables them to make informed judgments about price versus quality. Patients, on the other hand, buy in small quantities, usually for episodic care. Typically, they are not well-informed about prices for comparable products, and may well equate price and quality when they have no other way to judge quality. They are also more sensitive to the total cost of an encounter with the health delivery system and not typically sensitive to the cost of a single product (or certainly the mark-up, of which they are not aware). Typically, they will assess costs based on the total cost of an encounter. Institutional buyers, on the other hand, are usually aware of what the competitive price should be for individual item because they routinely buy these items in bulk.

Central Medical Stores

Under the cash-and-carry (C&C) system, the Central Medical Stores (CMS) has become a public sector wholesaler. As the exclusive central wholesaler for the public sector, CMS should benefit from major economies of scale as compared with smaller private sector wholesalers. Unlike private sector wholesalers who must cover other operating costs and earn profits, CMS's general operating costs are covered by the MOH budget and not RDF sales revenues. Therefore, in terms of its ability to keep its sale prices low, CMS should have a strong competitive advantage over the alternative private sector sources—local producers and wholesalers—but it appears that CMS is losing ground.

The current mark-ups at CMS (compared with those presented in table 1) are 45 percent for International Competitive Bidding (ICB) prices and 15 percent for locally purchased products. Current staff, who have been at CMS for nearly five years, met these prices when they arrived there.

Although there were radical fluctuations in the gross margin (perhaps because of write-offs in the cost of goods sold), CMS had an overall average surplus of nearly 20 percent for 1993 through 1996 (Aboagye-Nyame 1997) (see table 3). In spite of the many stockouts, which are apparently common, no cash flow problems were reported at the CMS level at the time of our preliminary research or during the years current staff had worked there (see table 3). Given inflation/ devaluation and anticipated program growth, one could argue that this level of surplus is appropriate. However, based on data from our preliminary research, the surplus experienced at CMS is in sharp contrast to what is happening at the lower levels of the MOH system.

Table 3: CMS Financial Activities from 1993 through 1996

Earnings	1993	1994	1995	1996	Total Average
Sales	1,970,724	2,288,119	3,187,145	3,718,082	11,164,070
Less: Cost of goods sold	1,619,970	2,158,558	3,131,136	3,226,573	10,136,237
Operating income	350,754	129,561	56,009	491,509	1,027,833
Gross margin	17.80%	5.66%	1.76%	13.22%	9.21%
Average mark-up	21.65%	6.00%	1.79%	15.23%	10.14%
Interest income	115,848	339,951	510,244	525,229	1,491,272
Value added	466,602	469,512	566,253	1,016,738	2,519,105
Selling and adminstrative costs	15,070	74,816	49,039	193,694	332,619
Relationship of admin to sales	0.76%	3.27%	1.54%	5.21%	2.98%
Depreciation	750	25,906	25,906	27,133	79,695
Retained earnings	450,782	368,790	491,308	795,911	2,106,791
Profit margin	22.87%	16.12%	15.42%	21.41%	18.87%

Most important, despite surpluses and adequate cash flow, the current pricing structure is making the system malfunction at the CMS level because CMS prices are often above the local manufacturers and wholesalers prices. This results from a combination of factors. The local tendering process used by the MOH Procurement Unit is criticized and is described as "shopping," although the international competitive bidding (ICB) is considered very effective for obtaining a low purchase price. Then, particularly if the purchase price is not very good, *the mark-up applied by CMS to local procurements is a mark-up that is being applied to the prices of products purchased from its own private sector competitors*. Naturally, when the MOH Procurement Unit does not tender or "shop" locally—as is the case for many products—the relatively high mark-up at the CMS level, and again at the RMS level, is apt to raise prices for many MOH products above those of local producers and importers.

This is relevant because the cumulative mark-ups are built up and passed on, ultimately, to patients, and the MOH is concerned about the impact on access and equity. However, it is even more important because the marked-up prices (for any products marked-up above comparable private sector prices) are probably impacting buying behavior at the facility level and blocking the flow of MOH products through the system.

As bulk purchasers, the RMS managers should be making price-sensitive buying decisions. According to the 1993 assessment, the prices for private sector purchases made at the RMS level ranged from 35 to 173 percent of the prices for comparable CMS products. The Volta Region was buying more than 40 percent of its products from the private sector and receiving private sector prices that were, on average, 35 percent of those for the same CMS products (Rankin et al. 1993). This suggests that the Volta Region was particularly price savvy in its shopping habits, and selected the private sector for products primarily when its prices were lower (see table 4).

In discussions with those working in two RMSs and with those working in the regional and teaching hospital in Greater Accra, we often heard stories about private sector prices that were lower than the CMS prices. The issue of purchase price was probably mentioned as frequently as the issue of availability at CMS, which is a well-known chronic problem.

Table 4: Comparison Private Sector Purchasing and Prices at RMS Level[6]

RMS	Total Purchases	% from CMS	% from Private Sector	Private Sector Price as a % of CMS
Greater Accra	247,016,590	38.90	61.10	172.60
Northern	28,721,000	91.80	8.20	60.00
Volta	83,275,435	59.30	40.70	35.00
Western	114,811,319	70.00	30.00	109.00
Averages	*118,456,086*	*65.00*	*35.00*	*94.15*

The 1998 Baseline Study gave three reasons for why public sector facilities purchased from the private sector (in order of importance): (1) non-availability at medical stores, (2) convenience, and (3) lower prices. Only two of the 17 public sector facilities surveyed cited lower prices as a reason for private sector purchases. By contrast, seven of the 14 mission facilities surveyed gave lower prices as a reason for purchasing from the private sector rather than CMS (Ministry of Health: Ghana 1999), probably because managers of mission facilities are better informed about the price comparison. Managers have no allegiance to the MOH and, having sophisticated price-sensitive shopping habits, they are more likely to compare public and private sector sources of supply than staff working in the MOH system, who assume either that the public sector prices are lower or that they are obligated to buy from their own system when products are available.

Entrepreneurial private sector producers and wholesalers will naturally exploit the opportunities offered to them and create opportunities. CMS staff described predictable private sector behavior:

> "Local suppliers are actively marketing their products, offering soft payment terms, delivering to their [MOH facility] doorsteps, and using modern trade tactics…like gimmicks… They are not only working on the supply system. They are working on the providers. So even though a brand name is not on the [essential drugs list], they are selling it [to the MOH facility]."

As observed at the beginning of this section, the CMS should—in theory—have a number of competitive advantages over its private sector counterparts: economies of scale, operating costs covered by the MOH, and no requirement to make profits. One can also look at the situation as a source of inspiration to make CMS more competitive.

One option that may not have been considered is marking up selected ICB products—which CMS "worries about because their costs are sometimes so low"—so that these margins will compensate for lower margins on other products. Our analysis of the RMS purchase price suggests that CMS could increase the mark-up on some ICB prices and still be well under the private sector prices.

It is not clear to what degree the MOH Procurement Unit's local purchasing practices are to blame or to what degree CMS's lack of entrepreneurial behavior and mark-up policies are to blame, but it is clear that MOH pricing policy problems begin at the CMS level. As long as every mark-up is based on the previous purchase price, pricing problems at the CMS level will reverberate down through the system right to the most remote SDP and the Ghanaians who go there for their health services.

[6] Source: Rankin et al. 1993.

Regional Medical Stores Level

Although the RMS's lower volumes offer less potential for economies of scale compared with CMS, the RMS level has lower mark-ups than CMS. According to the 1993 assessment, the prices for private sector purchases made at the SDP level ranged from 101 to 148 percent of the prices for comparable MOH products (Rankin et al. 1993). This suggests that, at least in 1993, SDP facilities were more likely to find that private sector prices were higher than those at the RMS level.

However, because of the controversy about pricing levels, a 1999 study of the implications of health sector reform for contraceptive logistics compared the prices of 16 (non-contraceptive) products in four districts. The district medical stores could purchase 11 of these products less expensively from the private sector than from the RMS; two products were of equivalent price, and two were more expensive. The districts also cited convenience, credit, quality, and the availability of brands as other reasons, in addition to purchase price, for buying from the private sector (Chandani et al. 2000).

Consideration of selected market prices for bulk/institutional buyers has not been the focus of previous work, and concerns about private-public price comparisons have tended to revolve around client-level prices.

Greater Accra

We conducted both qualitative and quantitative research at the Greater Accra RMS. During interviews with the staff, we were told that complaints from the facilities about high prices sometimes caused the RMS to reduce or eliminate mark-ups on selected products. One facility, Kaneshie Polyclinic, had recently returned an order that it had purchased from the RMS saying that the RMS price was twice that of a private sector source. This anecdote illustrates how pricing can block the flow of products through the MOH system and, therefore, actually increase the levels of wastage through loss because over-priced products may sit in the MOH warehouses until they expire, and savvy institutional buyers will select cheaper products from the MOH system and use the private sector for those products that are not cheaper.

Staff at the RMS said that a circular from the MOH at the beginning of C&C had instructed the RMS to mark up 10 percent over the most recent purchase price and the facilities were to mark up an additional 10 percent. (This circular was not available.) The RMS was normally marking up 10 percent over purchase price and adjusting prices for a product whenever the basic purchase price increased. They were never marking up more than 10 percent, except when a number was "rounded" to make it even[7]. Any exceptions to the 10 percent mark-up were lower mark-ups, which were made when (a) it was believed that the price would be too high (either because the actual product was expensive or because the SDPs complained about the price), or (b) the product was not moving. The RMS occasionally donated slow-moving drugs, especially when the expiration date was short. "Facilities are wary of drugs with short expiry. They don't want to gamble with prices but will accept donations." (We were later told by a DMS that the RMS reduced its mark-up to them 5 percent, which allowed the DMS to add 5 percent at their level.)

The managers estimated that the RMS received less than half its products from the CMS. This was confirmed by 2001 accounting data. The reasons given for private sector purchasing were

[7] "Rounding" could create a significant change in the mark-up percentage if the price is very low for a unit as small as a capsule or tablet.

(a) convenience, (b) prescribing habits that called for products not on the EDL, and (c) not availabile at CMS. The new regional procurement procedures were described as cumbersome. They were well aware that the SDPs in the Greater Accra Region often bought from the private sector, and described the cumbersome regional procurement procedures as being partly responsible for this. To help the SDPs procure in the private sector, they had provided SDPs with a list of reputable suppliers and a price list that might help negotiate purchase prices.

The RMS managers said that during meetings they told the SDPs they should mark-up 10 percent, but they acknowledged that they did not know what the SDPs were actually doing. They also gave the SDPs credit "when necessary."

We analyzed all purchases for 30 tracer products for 2002. Products that were vital for public health perspective (e.g., oral rehydration solution, anti snake-bite) were always purchased from CMS. Other products were only purchased from the private sector. For some products (e.g., mebendazole tablets and dextrose solution) with both private and CMS purchases, the private sector prices were lower. For other products, CMS prices were usually drastically lower. For example, amoxicillin syrup was 7.80 cedis/ml from CMS and up to 35.00 cedis/ml from one private source, with a weighed average cost for all purchases of 23.48 or three times the CMS unit purchase price. Multivitamins showed the most dramatic range, with a CMS price of 5.52 cedis/tablet, the high end of the private sector range at 348.97 cedis/tablet, and the weighted average at 29.77 cedis/tablet or almost six times the CMS unit purchase price. The private sector multivitamin purchases included brand names in blister packs. Six purchases of cough syrup were made during the year, which is not on the EDL. The radical variance in basic unit prices suggests the kinds of distortions that will occur in sale prices when a straight-forward percentage mark-up is added to the most recent purchase prices.[8]

Another interesting observation about all private sector purchases through the RMS (i.e., not just the 30 tracer products) is that the firms awarded tenders frequently did not have the stock themselves. Many of the orders that were made by the RMS, after it had awarded the tender to a firm, could not be filled. Only some of the items on the tender award, or partial shipments of those items, were included in the delivery of the order. Sometimes subsequent deliveries completed the orders after a lapse of time, but this did not occur consistently. Although we did not specifically quantify the frequency, it appeared to be very routine, with more than half the tenders awarded resulting in partial shipments either because the supplier was stocked out of several products or could not provide the entire quantity ordered. Therefore, availability in the private sector versus CMS may not be as it is often described to be.[9]

Table 5 and figure 1 summarize all expense transactions for the RDF at the Greater Accra RMS. (We examined every expense transaction in the RDF for 2001.) Total expenditures were just over three billion cedis. Of this, 40.37 percent was spent on public sector drugs and 51.72 percent was spent on private sector drugs. In addition, another 2.2 percent was spent on taxes related to the purchase of private sector drugs.[10] If taxes are not included, the total expenditure exclusively for

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[8] Some products, including the tracer drugs, were received as donations, but this information was maintained on the tally cards, and time did not allow us to include these data.

[9] Although not presented here, the data we collected at the RMS allowed us to calculate total market share for each of the local suppliers providing products to the RMS. This analysis can be done in all major facilities studied and may be relevant for several reasons, including the concern that several stakeholders had about quasi-monopolistic control by selected private sector suppliers.

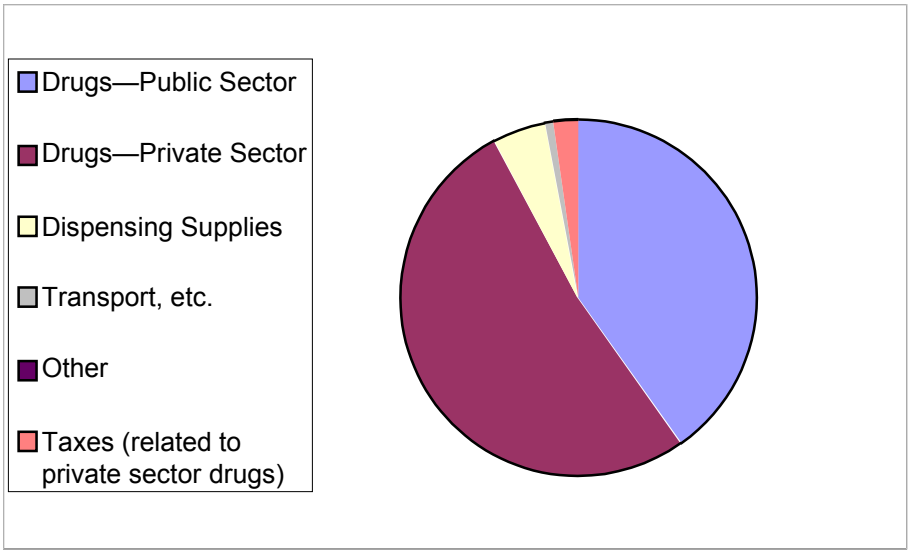
[10] The tax, which the RMS withholds from the supplier's invoice and then later turns over to the IRS was 5 percent at the beginning of 2001 and shifted to 7.5 percent later in the year. Like every other aspect of purchase/replacement cost, it is being passed down to the Ghanaian consumer.

pharmaceuticals is 44 percent for public sector purchases and 56 percent for private; if taxes are included, the split is 43 and 57 percent respectively.

Table 5: Greater Accra RMS by Expense Category 2001

Expense Categories	Percentage	Expenses
Drugs—Public sector	40.37	1,250,127,962.00
Drugs—Private sector	51.72	1,601,515,473.50
Dispensing supplies	4.83	149,691,362.10
Transport, etc.	0.72	22,211,461.00
Other	0.16	4,893,355.20
Taxes (related to private sector drugs)	2.20	68,003,778.50
Total		3,096,443,392.30

Figure 1
Greater Accra RMS by Expense Category 2001



Dispensing supplies accounted for 4.83 percent of the total costs or 5.12 percent of total drug costs (including taxes). The level of expenditures on dispensing supplies is particularly relevant for the SDP level. The RMS sells these supplies at a mark-up to the SDP level, but the SDPs cannot charge directly for dispensing supplies because these supplies are only packaging for the products that are dispensed and sold to patients. If the SDPs are purchasing dispensing supplies in approximately the same percentage to pharmaceuticals as the RMS, then a mark-up of more than 5 percent would be required simply to cover the cost of these supplies at the SDP level.

The total of other costs is extremely low. Transport accounted for only 0.72 percent of total costs, and transport combined with the "other" costs category (including such items as computer and printing maintenance and repair) is still less than 1 percent of total costs. (Because income usually influences expenses, we can speculate that the RMS "other" cost category might have been higher if the mark-up had been higher.)

Given the level of purchases for 2001, table 6 presents calculations on the potential implications for the viability of the RDF at the Greater Accra RMS if one assumes that the level of losses is 5 percent and the overall inflation for the length of the pipeline at the RMS is 10 percent.

Table 6: Greater Accra RMS, Potential Implications for RDF

Original Cost of Drugs, Sales Revenues, and Expenses	
Original cost of drugs and supplies (including taxes)	3,069,338,576.10
Drugs and supplies sold (5% losses, 10% mark-up)	3,207,458,812.02
Transport and other expenses	(27,104,816.20)
Estimated replacement costs (with 10% inflation)	(3,381,655,124.43)
Deficit	(201,301,128.61)

The 5 percent losses and 10 percent inflation figures can be recalculated with more optimistic figures for losses and inflation. The calculations are only illustrative. However, the 10 percent mark-up is already optimistic because RMS staff say they never mark up more than 10 percent and often mark up less than 10 percent. The estimates being used for losses are identical to those in the MOH model in table 1, and the estimate used for inflation is lower. The real mark-up is significantly lower than the mark-up in the MOH table 1 model, and actual "other" costs related to resupply are significantly lower than those used in the model. Yet, the RDF appears to be at risk of decapitalization, and there is no reason to have a higher mark-up at the CMS level than at the RMS level. (For local procurements, there was no difference in the CMS and RMS level mark-ups in the model presented in MOH table 1.)

Upper West Region

The Upper West Region (UWR) is of interest both because it is one of the poorer, more remote regions and because the Upper West Region Drug Programme (UWRDP) received significant support from DANIDA. The better operating systems developed in UWR have been a source of inspiration for the reengineering plans currently being supported by DELIVER. We interviewed the former Chief Pharmacist from UWR and reviewed RMS reports for 1998 and 1999. Because of stockouts at CMS, the RMS in UWR bought about 30 percent of its products in the private sector, but they found that, generally, private sector prices were higher than CMS prices.

During the early years of C&C, the RMS had been using a mark-up of 23 percent on the most recent purchase price of products, although they made some adjustments to accommodate expiry dates. This mark-up was intended to cover transportation, losses, deterioration, devaluation, etc. The RMS used the "pull system," which reduced losses and wastage. "Because the mark-up was so good, we continued to absorb the shocks [inflation, etc.] and provided drugs on credit [to the MOH facilities]."

"Somewhere along the line, [the SDPs] complained that the mark-up was too high, so we brought it down to 15 percent." This happened in 1999. The mark-up was also covering recurrent transportation costs, as DANIDA only provided the initial capital, including the truck. After the reduction in the margin, the RMS "could not continue to absorb too many shocks."

It is worth noting that if we return to the scenario for the Greater Accra RMS in table 5 and assume that losses are reduced to 3 percent (as they probably are at the Upper West RMS) and the mark-up is increased to 15 percent (at it is at the Upper West RMS), there would be a small

operating surplus even with a 10 percent inflation factor. In other words, with good control over losses, a 15 percent mark-up may be reasonable for the RMS level. (The Upper West Region is planned for inclusion in the pricing study.)

District Medical Store Level

During our preliminary research in Greater Accra, we visited the District Medical Store (DMS) at Dangme West. This DMS, like the facilities it serviced, was deeply in debt to the MOH supply system, and it had no option but to buy almost everything from the RMS.

The RMS marked up products to the DMS by only 5 percent and the DMS marked up an additional 5 percent. This level of mark-up should cause an RDF to gradually decapitalize. To precisely assess decapitalization, one might compare beginning and ending inventory values, adjusted for inflation, with cash balances at the beginning and end of a period of time. However, indicators that are much easier to retrieve in the MOH system are clear symptoms of decapitalization: dwindling stocks of pharmaceuticals and increasing levels of debt.

The Chief Pharmacist said the DMS debt to the RMS was currently 60 to 70 million cedis, and the debt the SDPs owed the DMS was generally rising. He described pricing in the past during high inflation periods that had been under purchase costs and one institution that had completely decapitalized. The DMS had apparently never been capitalized; its original stock shipment put it in debt. Most of the SDPs served by the DMS had received an original capitalization, if only in the form of stock, but they weren't being reimbursed for their exemptions and they were sinking into debt. He estimated that out of the approximately 40 million cedis worth of stock on hand at the DMS, five million was or would be lost, partly because the SDPs couldn't buy and partly because the RMS provided stock with a short shelf-life. A pilot health insurance program was not yet reimbursing the SDPs but this problem would be "sorted out soon."

The Chief Pharmacist gave us the impression that he was at least as concerned about the fate of the SDPs as he was about the DMS. One of the SDPs served by this DMS, the Dodowa Heath Center, is discussed later in this paper. He also told us about another DMS that had decapitalized and had shut down. That DMS had served the Amasaman Health Center described later.

Service Delivery Point Level

We were only able to visit SDPs in the Greater Accra region. As with the RMS level described above, we were also able to gather some information on SDPs in the Upper West Region.

Korle-Bu Hospital

Korle-Bu is the major teaching hospital based in Accra. The Shop at Korle-Bu, which operates as a semi-autonomous entity, was described at the end of the first section of the paper. (Readers who skipped that section should review it.) We also met with staff from what is called the Korle-Bu Central Medical Stores (KB/CMS), part of the pharmacy department. The KB/CMS is not connected to The Shop. It operates as a supply service to all the satellite pharmacies operating within the different hospital units.

Staff said "the government gives us a 10 percent mark-up. Certain drugs are very expensive and are not marked up, but mostly it's 10 percent." The prices were fixed by the KB/CMS and

applied, with no additional mark-up at the satellite clinics. The contrast between the attitudes and behaviors about pricing at the KB/CMS and the dynamism at The Shop was striking.

Although we did not visit any of the satellite clinics, we heard from the KB/CMS that there were many "plug holes…leaks…all areas where drug money doesn't come back." If the KB/CMS endorses the non-availability of a drug, staff members are allowed to go "outside" to buy the product and then be reimbursed.[11] Although the hospital board is apparently covering the costs of staff exemptions (presumably with profits from The Shop), reimburements of exemptions for non-staff were described as taking "more than a year…sometimes infinity."

Much of the purchasing of products was taking place outside the CMS. Although we were not given precise figures, it seemed that at least half the purchases were directly from the private sector. The onerous process of buying from CMS was given as one of the reasons: "It takes 770 steps for drugs to get through the public sector."

There was a long discussion with the staff about exemptions and problems of access at the hospital, with many anecdotes provided to illustrate problems. Patients were seen as often waiting too long for critical treatments, such as anti snake-bite and tetanus shots. The problem of rational drug use (RDU) was also discussed at some length, as the hospital conducts training in RDU, but the staff turnover rates undermine this effort.

Ridge Regional Hospital

The Ridge Regional Hospital sees approximately 200 outpatients a day.

"We are already disadvantaged because RMS adds to CMS [prices]," said the pharmacist-in-charge at the Ridge Regional Hospital. "In those early days buying from CMS was cheaper… These days it's often cheaper to buy from the private sector because RMS puts its own mark-up … and it's so time consuming to go to RMS. I can spend the whole day there. Sharp [a local company] will just deliver."

The pharmacist was aware of the recommendation to add 10 percent, but he "met" much higher prices when he came to Ridge Hospital. He said the previous price mark-ups ranged from almost nothing to 200 percent. He had been reducing the mark-up and was generally using 20 percent, but often "rounding up" beyond that. He said he was following the pattern that had been followed at Korle-Bu Hospital where he had recently been assigned.[12]

In addition to noting what was done in the other large MOH hospitals in the area, the pharmacist monitored private sector prices. He liaised closely with private sector pharmacists and said that they added a minimum of 33 percent. He also consulted private sector suppliers about what mark-ups were being added by the private pharmacies.

He had not been able to do any analysis of the viability of the RDF at Ridge Hospital, but he thought his revised pricing scheme was helping because he had been able to clear some of the hospital's debt for pharmaceuticals. We did not collect data on the level of debt the RDF was

[11] One former staff member said that staff and up to four dependents were given these benefits.

[12] Note that he was not following the pricing pattern established at CMS/Korle-Bu (i.e., 10 percent) but the pricing pattern used at The Shop at Korle-Bu.

carrying but it appeared to be high. In addition to debt with the RMS, the Ridge Hospital had debt with CMS.[13]

A major reason given for the 20 percent mark-up was the need to make-up for losses from exemptions. Of approximately 100 million cedis in exemptions during the year since he had joined the hospital, there had never been any reimbursements. Approximately 45 percent of the exemptions were for hospital staff. There were also many patients that came to Ridge Hospital from government-operated boards and corporations; although their costs were supposed to be reimbursed by the boards and corporations, reimbursements were not being received. He had not done any actual analysis; he estimated that approximately 5 percent of all drugs were dispensed as exemptions.

Although the impact of exemptions was clearly important, the pharmacist-in-charge felt that many of the problems with C&C and the RDFs would be solved if the economy settled down and inflation/devaluation was not severe.

He also mentioned that his attempts to improve financial control had been somewhat thwarted because there was resistance to the computerized receipts that he was now able to produce, even though the hand-written receipts were more prone to abuse. He was not a signatory on the RDF account. (This responsibility varies significantly across RDFs in different facilities.)

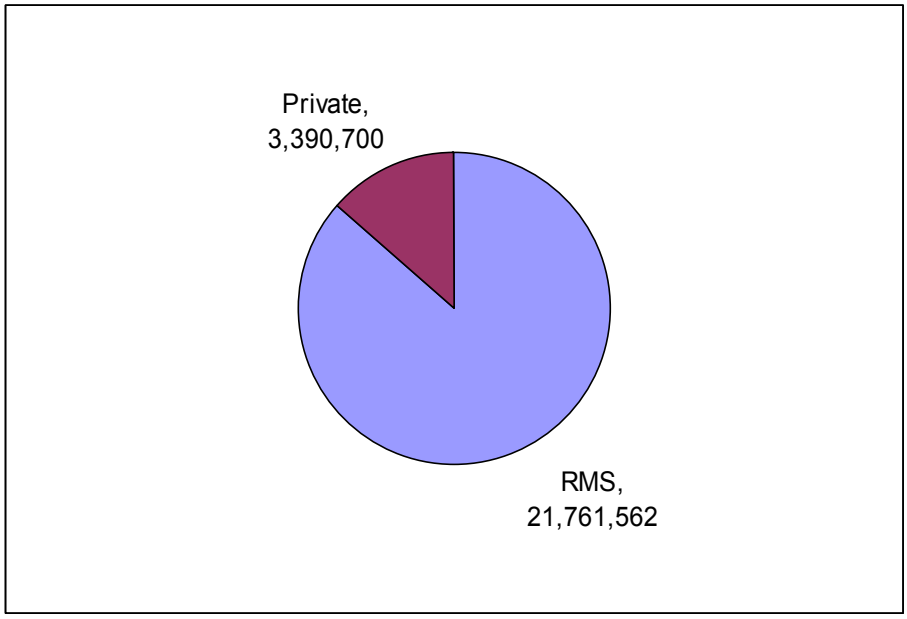
Amasaman Health Center

The Amasaman Health Center is in a relatively remote and rural area of Greater Accra. The area around both this clinic and the Dodowa Clinic is considered to be typical of Ghana in terms of levels of poverty, education, etc.

A DMS had previously served the Amasaman Center but it ceased to exist. The clinic staff had to go into the RMS to collect pharmaceutical supplies and provide their own transport. The clinic rarely bought from the private sector, largely because it had no funds and only the MOH system would give it credit. It was heavily in debt to the RMS. During 2001, it purchased 25,152,261 cedis and only about 13 percent of its 2001 purchases were from the private sector (see figure 2).

[13] We happened to be at CMS when the pharmacist-in-charge came in to make a direct purchase from CMS, and the order was provided because he was able to pay off some of the past debt.

Figure 2
Private-Public Purchases by Amasaman Health Center, 2001

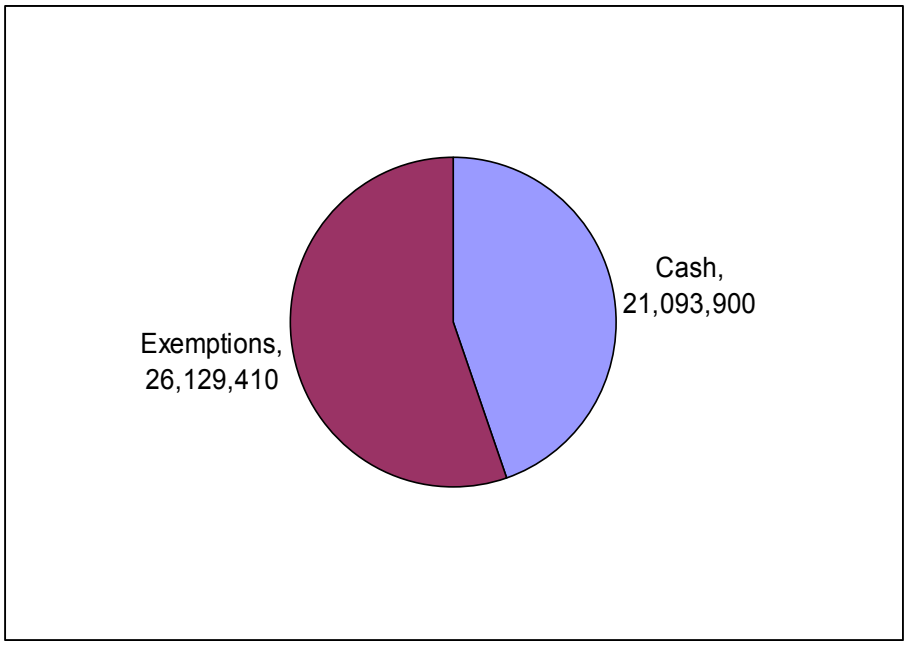


The clinic marked up products by 20 and sometimes 25 percent over the RMS prices; 25 percent was used for slow-moving products because of the threat of prices rising with inflation. Price changes were based on price changes in the RMS list even though products being to sold clients might have been purchased at earlier, lower prices from the RMS.

If losses are low and the pipeline is short enough to keep replacement cost inflation low, this level of mark-up at a health center might be adequate, especially since putting the mark-up on the most recent RMS price eliminates the inflation caused by the length of the pipeline within the SDP. However, the impact of exemptions in poorer rural areas is enormous. Out of 47,223,310 in pharmaceutical *sales* during 2001 at the Amasaman Health Center, 26,129,410 cedis were given free of charge because of the exemption policies—exemptions accounted for 55 percent of *sales*. When asked if they received subsidies to reimburse the exemptions, the medical assistant replied, "Not much. Not often."

The medical assistant we interviewed was clearly very busy. He had to leave several times to attend to a patient. However, he had found time to prepare large charts, which were stored in a corner of his office, that presented the basic data we used to develop figures 1 and 2. He also had monthly data, with quarterly summaries, on revenues compared with the bank balance. Without being told to do so, he was attempting to track and present data on the RDF. It was not clear if he understood how strikingly obvious the decapitalization of the RDF was, based on the figures. Not only did the exemptions exceed the sales figures but the exemptions actually exceeded the total purchases of all products made during the same year (compare figures 2 and 3).

Figure 3
Pharmaceutical "Sales" at Amasaman Health Center, 2001



There were almost no drugs in the Amasaman Health Center. They see between 35 and 50 patients a day, and the clinic was busy the day we arrived unannounced.

Dodowa Health Center

Although situated in an area similar to that of the Amasaman Health Center, the Dodowa Health Center is next door to the Dangme West DMS, which allows easy access to products available at the DMS. Only a few products come from the RMS. Very few products are purchased in the private sector, and when they are, the DMS pharmacist purchases them instead of the health center.

The health center is officially at the sub-district level, but its location at the district headquarters for Dangme West gives it a special status. It also offers an interesting example of a SDP because of its participation in the Dangme West district community health insurance experiment. Similar to the Mutual Health Organizations (MHO) that have been springing up in Ghana and other West African countries, the *Dangme Hewaminami Kpee* (Good Health Association), a grassroots initiative, has been nurtured by the district administration and is receiving attention at the central level because of the government's commitment to introducing NHI. In early April, the District Director made a presentation on the insurance initiative at the Ghana Medical Association's session on health insurance, and it was described as a pilot program by the staff at the health center.

The DMS purchases at a 5 percent reduction from the RMS and then marks up 5 percent for itself. This means prices to the SDP level from the DMS should be the same as the RMS prices. The Health Center staff reported that they marked up all items by 10 percent over the DMS price.

The level of exemptions was not as extreme as those seen at the Amasaman Health Center. They estimated that about 75 percent of the pharmaceuticals were paid for with cash; that 5 percent

were covered by the pilot insurance program; and that 20 percent were exemptions. They hadn't been reimbursed for the exemptions for about 18 months, but in February 2002 they received a reimbursement for the year-long period from October 2000 through October 2001. They thought they had been fully reimbursed for that year but, of course, there was still a cash-flow lag time of approximately six months for the period since October of 2001 for which they had not been paid. Although the staff were clearly enthusiastic about the pilot insurance program, they had not received any reimbursements from it yet. Therefore, the insurance program was contributing to the cash-flow problems rather than diminishing them.

The Principal Medical Officer reported that the 10 percent mark-up would have covered their costs if the exemption and insurance reimbursement mechanisms had worked correctly and promptly. It is more likely that they would be slowly decapitalizing even though they would be unaware of it, as they had to pay for dispensing supplies and some losses. However, this health center did not need to obtain transport to collect products from RMS, and its proximity to the district headquarters, and the DMS probably helped it in other ways.

Upper West SDPs

The former manager of the RMS in Upper West explained how and why the RMS had established prices for the SDP level as part of the DANIDA-assisted project. "To stop confusion [at the SDP level], we did the prices for them and made a list. Everything was cooked for them. We did all the calculations for them." The SDP mark-up was about 5 percent, both before and after the RMS changes in its own mark-up. "We [RMS] went to monitor adherence to prices."

The RMS has also conducted routine price comparisons between the prices it has set for the SDP level and the prices that are being charged in the commercial and mission-run sector.

Within the Upper West Region, SDPs followed the government policy on exemptions—older than 60 years old (lowered from 70), under five, antenatal, indigents, and all civil servants (especially MOH staff). Facilities were to document exemptions and give them to the region; then the RMS provided replacement drugs. After some time, the SDPs requested funds instead of products. It is unclear how well the reimbursement mechanism is working now in UWR.

However, whether or not the reimbursement mechanism is working, it is highly unlikely that the 5 percent mark-up is adequate to cover replacement costs at the SDP level. DANIDA had been supporting recapitalization of the SDPs, and the UWRDP reports show that, even with recapitalization from DANIDA, the SDPs were going increasingly into debt with the RMS. The higher mark-up at the RMS level may have allowed it to "absorb the shocks" because it was relatively cash rich (especially when it was using a 23 percent mark-up) and it could afford to extend credit to the SDPs. However, the SDPs had no cushion to absorb shocks and, even with recapitalization from DANIDA, the 1998 and 1999 reports show that the value of the issues to them was routinely exceeding the payments received (Ministry of Health/Upper West Region 1998, 1999).

Impact of the MOH Mark-Ups on the SDP Level

As illustrated most clearly by the DMS we visited in Greater Accra, the offering of credit gives higher-level facilities almost total control over lower levels, and makes lower levels dependent on these higher-level MOH facilities. This observation was made by several of the stakeholders who had worked within the system and were now working at the central level. The small and lower-level facilities have lost control over their own purchasing choices as they have become more and more dependent on credit purchases from the MOH facility above them in the hierachy, while the RMS and the large hospitals have a high degree of control because they are less dependent on credit.

Also, as one moves down the supply chain, the opportunity for economies of scale diminishes as the volume dimishes. This is evident in the commercial sector where mark-ups are higher at the retail level than they are at the wholesaler or semi-wholesaler level. The reverse is true in the current MOH system, and yet the SDP level is exactly where the cost-recovery perspective is most essential. This reversed thinking may have evolved because the SDPs are the link to consumers, and, therefore, there is a more immediate link between price and its impact on consumers in the minds of those formulating pricing policies.

If the RDFs decapitalize at the SDP level, the whole system fails and consumers leave facilities empty-handed. In addition to their own product replacement costs, the SDPs are covering at least part of the costs of exemptions. They need to cover the costs of dispensing supplies. They are frequently using RDF funds for transportation because they simply have no other source of funds. Finally, this is the end point in the distribution system, and expirations and losses are likely to be highest here.

A more detailed discussion of exemptions continues in the following section. It is critical, however, to note that the impact of exemptions on the financial health of an RDF works like the impact of losses. Exemptions do not add a cost to the basic replacement costs; they reduce the base of products that can be sold, which, mathematically, has an even greater impact on replacement costs. (Because exemptions normally occur after losses have already taken place, the loss of the base of products that can be sold is compounded by exemptions.)

Although the pricing study needs to compare SDP prices with those of equivalent products available from mission-run and commercial sources, it is even more critical to assess RDF performance at the SDP level, including the degree to which the mark-up on products sold is recovering full replacement costs. All available data suggests that lower-level facilities have been gradually decapitalizing and will continue to do so unless the system is changed so that higher mark-ups are given at the SDP level.

“If you catch a monkey,” said one stakeholder, “catch a monkey with a long tail, so that you can tie the monkey up by its tail. The system needs to be sustainable.” The mark-up should take care of the RDF at the SDP level in the same way the monkey’s tail takes care of the monkey and keeps it in place.

Decentralized Procurement and the Private Sector

"We are supposed to have a monopoly, without any outside buying," said one stakeholder, describing how the C&C system was envisioned as a sales system internal to the MOH. He was one among a number of stakeholders who were concerned about, not only costs but quality control. Whether purchased from within the MOH system or outside the MOH system, preventive quality control is an increasing concern.

The widespread private sector buying throughout the MOH supply system can be viewed as a natural or organic form of decentralization, with each facility at the different levels being responsible for purchasing its own supplies. While there are a number of arguments that can be made in favor of this approach—largely based on the main tenants of decentralization—there are also many downside risks that probably outweigh the benefits or should if the MOH procurement unit and CMS are functioning effectively.

When done correctly, centralized procurement should provide major economies of scale, bring into play the forces of market competition that obtain the lowest prices, provide preventive measures that maximize quality assurance, and ensure adherence to an essential drug list. (CMS does not buy outside the EDL; it may be the only MOH facility that does not.) None of these can be done very well in a decentralized procurement system. Procurement in any system is always vulnerable to temptations for on-the-side or under-the-table arrangements that increase prices and/or undermine preventive quality assurance measures. Therefore, when procurement is decentralized, the system's vulnerability to such temptations is multiplied with administrative/ political will, these temptations can be controlled at the central level, but such controls are not possible in a decentralized system with myriad procurement sites.

In addition, the private sector procurement in Ghana is adding the cost of taxes to the price that is passed down through the system. The tax rate was 5 percent at the beginning of 2001 and rose to 7.5 percent mid-year. Taxes are actually deducted from the payments to suppliers and then paid to the Internal Revenue Service (IRS). A waiver on public sector purchases would reduce the purchase price to facilities and, ultimately, to clients.

There is also well-founded concern about how the local market operates and how it can be managed by the MOH. "The MOH only influences about 15 percent," said one stakeholder. The power and influence of some local suppliers, who were seen as effectively having a local monopoly (IV solutions and oxygen), was cause for concern. The MOH procurement unit gives local suppliers a price differential advantage over international suppliers. Given the quasi-monopolistic influence of some suppliers, a reconsideration of this policy is warranted, especially for some products.

Administrative Expediency and Simplicity

The administrative implications of pricing policies need to be considered. The complexities of administration often undermine the implementation of policies that were sound, in theory, but failed in practice. On the other hand, attempts to streamline and simplify administration can be undermined if they are not aligned with practical needs and other incentives.

For example, the original term, cash-and-carry, conveyed an essential message that every facility would have to pay cash for its supply of pharmaceuticals, as would every patient. Credit, which would have complicated administration, was not part of the plan. However, in reality, most facilities are both offering and receiving credit from other facilities, whether private or public. Even contraceptives are often procured on credit (Raja, Allain, and Kinzett 1999). On the other hand, MOH facilities usually do not offer credit to clients, probably because of the risk and administrative complications.

Staff working in facilities should be asked about all elements of administration related to pricing, including institutional control over pricing levels, the timing and frequency of price changes, actual calculations for price changes, communication throughout the system about pricing levels, the offering of credit, accounting recordkeeping related to pricing and the RDFs, tracking and reimbursement of exemptions, etc. While the administration needs to be streamlined, it also needs to be aligned with system incentives and practical needs.

The public sector may need to think more nimbly about pricing, i.e., responsive to changes in the situation. A simplified pricing strategy may be easy to administer, but it may not be responsive to the market. Past examples of pricing for contraceptives in the public sector illustrate that the MOH system has not been responsive to changes in its operating environment, which should influence pricing strategies—for example, rapid devaluation or inflation—until long after those changes have been obvious (Ministry of Health: Ghana/USAID 1998). The descriptions of the pricing strategies being used for pharmaceuticals in Upper West Region and at The Shop in Korle-Bu Hospital illustrate strategies that are not overly complex and can be flexible and responsive.

Market/Incentive Approach to Pricing—Clients

In developing pricing strategies, the MOH is concerned about the impact on access and equity through the impact of the ultimate mark-up on patient purchasing behavior. Following the pattern of similar research in other sub-Saharan countries, research in Ghana has shown that user fees are a factor that limits access to care at MOH facilities, probably most often for the poor. But price levels are not the only influence on demand for MOH services, and patients also apparently perceive that there has been an improvement in MOH services that relates to cost recovery (Asenso-Okyere et al. 1998).

Subsidies and Exemptions

Both the Government of Ghana and the MOH are concerned about the impact that user fees are having on access and equity. As in other countries, this is both a public health and a political issue. Current exemption policies and practices are intended to address these concerns. The pricing study will examine how exemptions are being handled in the different sample facilities and whether the subsidy provided to facilities by the MOH to cover the cost of exemptions is working so that it adequately covers the cost of exemptions within a reasonable time period after the exemptions are given to clients.

However, our preliminary research already indicates that the system is not working, and that everyone does not understand the degree of the problem at the facility level. The MOH does not always approve of the amounts requested as reimbursements from the SDPs.

"We always vetted their records," said one stakeholder. "They thought it [exemption reimbursements] was a dead elephant lying there, and they could cut as much as they wanted to."

The slow pace of reimbursement is an even greater problem. In all our sample facilities in Greater Accra, it was taking more than a year for the reimbursements to come through.

"The reimbursements came slowly," said one stakeholder, "depending on the availability of funds… I wouldn't call it decapitalization, because it was money they [the SDPs] would get back anyway. I would call it erosion." However, the erosion of working capital through the slow payment of subsidies to facilities is simply another form of decapitalization, as can be seen from the sample facilities we visited where the problem was extreme.

In addition to its negative impact on the financial health of the RDFs, it is well known that the current exemption mechanism is not targeting those who most need to benefit from it. Previous studies have shown that MOH employees are often the largest beneficiary group. Our preliminary research reinforced this, especially based on the experience in the larger hospitals, and a number of stakeholders provided anecdotes that illustrated the problem.

In terms of thinking through a more appropriate exemption mechanism, an MOH Working Group previously identified and discussed the options and came up with a carefully considered recommendation that should be revisited by those responsible for formulating pricing and exemption policy.

Exemption policies, while theoretically an ideal policy solution to the issues of access and equity related to user fees, are notoriously difficult to implement. In practice, targeting exemptions appropriately is difficult. Often, even the best intended efforts at appropriate targeting result in complex and imperfect administration systems that may increase the potential for abuse of the system along with costs. With these types of considerations in mind, the MOH Working Group developed a list of criteria to evaluate various exemption options (see table 7). Like the cost/pricing model presented earlier, the recommendations of this MOH Working Group were not implemented. However, given the system that has evolved, it would be useful to revisit their deliberations.

Table 7: Merits and Shortcomings of Subsidy Options[14]

Subsidy Type	Targeting of Vulnerable Groups	Targeting Public Health Goals	Identification of Those Eligible	Ease of Administration	Potential for Leakage/ Abuse
General	Very Poor	Very Good	Very Good	Good	Very Good
Individual	Good	Fair	Poor (poverty) Good (age/sex)	Poor	Poor
Item	Very Poor	Poor	Very Good	(Very?) Good	Good (Fair?)
Illness	Fair	Good	Good	Poor	Poor
Service	Good	Very Good	Very Good	Good	Poor
Level	Good	Very Good	Very Good	Very Good	Good (Fair?)

The Working Group ultimately recommended that a level subsidy should be provided that made all consumables free at the point of issue at the sub-district level, and that all other levels should charge full costs for consumables. This level option was "expected to (broadly) target the poor, encourage use of primary and preventive services, and encourage rational referral patterns. It would require that the government provide full funding for consumables at the primary level, otherwise stockouts and informal charging will reappear and the system will break down. This requires a detailed and objective assessment of the budgetary requirement for consumables at the primary level." If the MOH still sees this as an appealing option for exemptions, then a cost analysis of consumables at this level should be conducted. Although the costs may be prohibitive, another appealing aspect of this exemption policy is its administrative simplicity. *It is striking to note that in the one true sub-district level health center we visited, more than 50 percent of the patients were already being exempted under current policies.*

Some exceptions were made to the level recommendation. At the hospital level, the group recommended that immunization, maternity services (antenatal, delivery, postnatal), and family planning services should be free. The value of making some of these services free to *everyone* is debatable and should be discussed further. The group also recommended some individual subsidies at the hospital level, but the ideas related to this subsidy were not clearly articulated in the paper.

Finally, *the group recommended that MOH employees should no longer receive exemptions.* The reasoning behind this recommendation was solid, and earlier work has already documented that MOH employees are often the largest beneficiary group for exemptions. This problem has often been found in other developing countries, and it is often politically difficult to change the policies that civil servants see as entitlements.

[14] Source: MOH. Report of the Working Group on Consumables (Finance). 1995. (Hand-written date on photo copy.)

The information about the impact of the subsidies on the financial health of the RDFs is not new. The official policy exempting categories of clients—paupers, the elderly, under-five's, and antenatal mothers—from paying for drugs was enacted at the beginning of 1998. The baseline study, which covered the first nine months of 1998 and sample sites in five regions, found that the percentage of exemptions varied significantly by region (Brong Ahafo at 8 percent; Central at 25 percent, Eastern at 21 percent, Greater Accra at 8 percent, and Northern at 13 percent) and only 73 percent of the exemptions had actually been reimbursed (Ministry of Health: Ghana 1999). The poorest regions had a larger share of exceptions, which argues for reasonable targeting of subsidies, but because only 73 percent of the exemptions were reimbursed, the RDFs in the poorer regions were at greater risk of decapitalization. The risk of decapitalization is even greater when one recognizes that the mark-ups on the drugs that are sold need to cover all associated costs and losses related to full product replacement. The one sub-district level facility that we visited was slowly being suffocated by the current exemption policies.

Consumer Attitudes and Behaviors Around Price

It is certainly the case that user fees introduced into the public sector system in Ghana and other African countries have, at least initially, deterred demand for public sector services. However, consumers usually do not stop seeking health care when fees are introduced (or sharply increased) in the public sector; they seek it elsewhere. Although attitudes may be changing, traditional beliefs and a ratio of one registered traditional practitioner to every 400 people (compared to 1:12,000 for doctors) are also deterrents to demand for MOH services (Asenso-Okyere et al. 1998; Tsey 1997). In poorer and more remote northern areas, the value of "the white man's medicine" (vaccines) in preventing childhood mortality may be questioned by the population (Adongo et al. 1997). People self-treat. They learn about diseases and treatments from social contacts and use this information to treat themselves. The liberalization of trade in Ghana has given consumers more choice. They may go directly to a pharmacy or itinerant drug seller because of convenience, availability, rapid service, absence of consultation fees, and, sometimes credit (Asenso-Okyere and Dzator 1997). They may choose to go to a mission-run or private facility because they think these facilities are better quality or greater convenience than the MOH facility alternative.

Often, as appears to have been the case in Ghana, those who initially stopped using the MOH system after fees were introduced or increased return to the MOH within six months or a year. Presumably, they have tried alternative forms of health care and decided that the MOH fees are worth paying. The underlying explanations for why demand declines after fees are introduced and then gradually picks up again have not been well studied.

There is also something of a mythology in public sector thinking about health consumers and price sensitivity in developing countries. Within a range that is broader than many expect, consumers are not very price sensitive or price is often not their primary criteria for making health *product* choices. The health care services they purchase vary from one visit to the next and will not be routine purchases. Consumers are limited in how well they can evaluate the health services they receive and in comparing what value they receive for money. In most cases, they only occasionally purchase products and are unlikely to compare prices, especially if they (or family members) are sick. Travel and waiting time are also important cost factors, especially if they mean the loss of earned income. Consumer choices are made based on many factors. Convenience (e.g., a pharmacy) or the perceived quality of a facility or provider are important factors (e.g., private versus mission-run versus MOH), and price is only one of the factors. When fees are introduced or raised in the public sector, consumers may decide to go to the private or

mission-run facilities—at least initially—because they perceive them to be of better quality or because they are more convenient.

With little else to assess quality, they may often equate price with quality, because they do not know about the quality available to institutional buyers. Therefore, a small difference in the cost of a pharmaceutical product is unlikely to have a major impact on demand for pharmaceuticals in the public sector *at the level of the ultimate client*. Indeed, there is some evidence that consumers believe the public sector products are better than those in the commercial sector (Asenso-Okyere et al. 1998); it is quite possible that they would be willing to pay a little more for perceived quality.

These issues could be studied through a series of focus groups with consumers, simulation exercises, and exit interviews at selected facilities. However, to the extent that patients are price sensitive, they will be sensitive to the full costs of a consultation, not the unit cost of a product, and they will certainly be unaware of any mark-up. The next section addresses this issue.

Provider Attitudes and Behaviors About Price

Previous work has revealed the degree of over-prescribing that occurs in Ghana. The 1993 Pharmaceutical Sector Assessment found that the average number of items prescribed per curative visit was 4.3 (Rankin et al. 1993). The 1999 Baseline Study found that five years later, in 1998, the average number of items had risen to 4.6 (Ministry of Health: Ghana 1999). These averages are high compared to the WHO average—considered a reasonable ideal—of two or less. Previous studies have considered these prescribing statistics in light of the potential for developing antibiotic resistant strains of disease, other public health issues, and concerns about the cost to the MOH. However, the MOH makes only minimal contribution to the cost of public sector pharmaceuticals. With the advent of C&C, the consumers pay for pharmaceuticals they are paying for the high cost of over-prescribing.

Are providers price sensitive? Do they think about the high cost to the consumer when they prescribe an average of 4.6 items per curative visit; knowing the patient will have to pay for the items, do they assume that most clients think that more drugs mean better quality of care? These are issues that could be explored through focus group discussions with providers[15].

The main point is that the patient is sensitive to the total costs of an encounter with the health system, and if providers are prescribing more than twice as many medications as are needed, they are more than doubling the cost to the patient, compounded by other related problems. This point is not limited to C&C. As one stakeholder working on insurance said, "If we can reduce the number of items, we can reduce the costs of insurance."

Another stakeholder pointed out that, "Drugs are the last step in the sequence, with other steps taking money along the way, leaving less and less at the end of the sequence for drugs." Yet we know that pharmaceuticals are the aspect of health service delivery that patients are most willing to pay for, which is why, more and more frequently, they go directly to the pharmacies and drug sellers and not to the MOH.

[15] This kind of research is not necessary to better inform pricing policies, although it might be used to build an education/communication program on rational prescribing.

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